



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,620	03/13/2001	Craig M. Carpenter	MI22-1563	3004
21567	7590	12/13/2005	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			FULLER, ERIC B	
			ART UNIT	PAPER NUMBER

1762

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/805,620	Applicant(s) CARPENTER ET AL.	
	Examiner Eric B. Fuller	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-26 and 40-47 is/are allowed.
- 6) ☒ Claim(s) 27-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 17, 2005 has been entered.

Response to Arguments

Applicant argues that there is no motivation to combine DiMeo with Ohashi, because the art does not recognize that some of the material in DiMeo undergoes chemisorption with the reactor walls. This is not found convincing. Regardless of if the materials undergo chemisorption or physisorption, the process of DiMeo would benefit from removal of material from the walls of the reactor. Accumulation of materials on the reactor walls is a very common problem with ALD processes. This is evidenced by Bondestam et al. (US 2002/0157611 A1). One of ordinary skill in the art would recognize that the purge gas taught by Ohashi would prevent material from accumulating on the walls of the reactor. Even if the process of DiMeo does not explicitly teach that material accumulates on the walls, inherently there is some probability of it happening. One of skill would not expect the wall to be perfectly

Art Unit: 1762

immune from accumulation, especially in view of the dead spaces that may occur in DiMeo. The purge curtain reduces this probability, as taught by Ohashi.

The present invention essentially is claiming to use a purge gas to eliminate gas from the chamber where it may exist. If gas accumulates in a certain area (i.e. along the walls), to use the purge gas in those areas would have been obvious. As shows above, accumulation along the walls is not a foreign concept. Therefore, the applicant's arguments have not been found convincing. The rejections of the previous Office Action have been maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiMeo, Jr. et al. (US 6,972,430) in view of Ohashi et al. (US 6,059,885).

DiMeo teaches a digital CVD method that uses purge to eliminate process gases from the chamber between steps (column 5, lines 1-25). The reference is silent to using a purge curtain. However, Ohashi teaches that by providing a purge curtain, particles are prevented from adhering to, or removed from, the chamber walls (column 2, lines 25-40). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a purge curtain, as taught by Ohashi, in the

Art Unit: 1762

process taught by DiMeo. By doing so, particles are prevented from adhering to the walls of the chamber. The ALD process steps taught by DiMeo meet the limitations that have been added by amendment. All other limitations are read upon as shown in previous Office Actions.

Allowable Subject Matter

Claims 22-26 and 40-47 are allowed.

The following is an examiner's statement of reasons for allowance: As argued by the applicant, the prior art of record fails to teach the barrier wall extending to below the substrate. Upon an updated search, it has been found that the prior art fails to teach, or make obvious, such a feature used in conjunction with a purge curtain in an ALD process.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Fuller whose telephone number is (571) 272-1420. The examiner can normally be reached on Mondays through Thursdays.


Art Unit: 1762

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks, can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EBF



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER